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A CASE
OF
ACUTE PUERPERAL INVERSION
OF THE
UTERUS.

A CLINICAL DESCRIPTION OF A NEW INSTRUMENT SUCCESSFULLY EMPLOYED. WITH REMARKS ON THE MECHANISM OF RESTORATION.

BY

JOHN BYRNE, M. D., M. R. C. S. E.,

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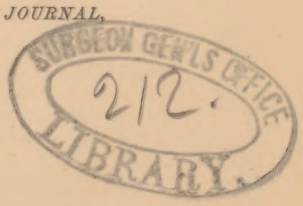

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ACUTE INVERSION OF THE UTERUS. A NEW INSTRUMENT SUCCESSFULLY EMPLOYED IN ITS RESTORATION

Inversion of the uterus, following parturition, is admittedly, and under the most favorable circumstances, an occurrence of the most grave and alarming character. When it falls to the lot of an experienced accoucheur to have to deal with a catastrophe of this nature immediately or very soon after the accident has taken place, the chances are undoubtedly in favor of his succeeding, by prompt action, in restoring the displaced organ.

If, however, as has not unfrequently happened, a *partial* inversion or collapsing of the fundus, or, what is more likely, of a single horn of the uterus, takes place after delivery, and, having been unobserved at the time, complete inversion follows after many days, or even hours, the difficulties to be encountered in effecting its restoration are so immeasurably greater, that some of the most distinguished obstetricians of the present century have utterly failed in their attempts at restoration under such circumstances.

As to the *exciting* causes which tend to its production, it is needless to say anything, as they have been fully set forth and discussed, over and over again, by every writer on obstetrics. Not so, however, as regards the causes, or rather conditions, which may, and probably often do, have a potent influence in

predisposing to the production of such an accident. On these important questions authorities are, for the most part, either entirely silent or apt to indulge in mere speculative surmises. Even so high a pathological authority as Rokitansky disposes of the subject by ascribing inversion of the uterus, in some instances, to a local or circumscribed "paralysis," which is probably, after all, but a condition or a sequence of some preëxisting structural change. Hence, such vague statements and assertions, based upon conjecture, or, at best, negative evidence, but tend to confusion, and can throw no light on the etiology of spontaneous inversion of the uterus.

My object in giving publicity to the following case is twofold, viz.: 1. Because I believe it to be a typical example of a class to which the term *unavoidable*, *spontaneous*, or even *traumatic*, might be applied with equal and strict propriety; and I have searched in vain for any case of the kind equally interesting and suggestive in a practical sense, or one whose history so pointedly denotes its etiology. 2. In order that the simple contrivance so successfully employed in accomplishing reversion may become the more widely known, and that it may prove in the hands of others hereafter as valuable and as universally applicable in the treatment of similar cases as I believe it to be.

Mrs. S., aged twenty-eight, primipara, when in the eighth month of pregnancy, accidentally received a severe blow on the abdomen from a little child at play.[1] For many hours after this occurrence she suffered severe pain, so much so as to render her unable to move about, and the fœtal impulses, till then quite strong, ceased to be felt during that day and evening. On the following day, however, she felt much better, the fœtal movements returned, and she complained only of a slight soreness over the seat of injury. From this period up to full term nothing transpired worthy of notice.

On the morning of Monday, August 26th, slight pains and other indications of approaching labor appeared, and in the afternoon I was requested to see her. The pains, though trifling and of short duration, were nevertheless regular in

[1] This circumstance was not made known until over a week after delivery.

their recurrence; and, on examination, the greater part of the lower pelvis was found to be occupied by the presentation, the head; the tissues were soft, cool, and dilatable; but, as there was no appearance of dilatation of the os, and as the bowels had been freely acted upon, the pains were believed to be "spurious," and an anodyne suppository was administered late in the evening.

By means of the opiate the pains were somewhat modified, but hardly any sleep was obtained during the night, and on the following day her condition was but little changed; the "grinding" pains continued active and regular, but there was not the slightest evidence of dilatation of the os, though the parts were in a most favorable state for that process. The course pursued on the second night was similar to that of the preceding one, and with a like result, for, on Wednesday, the local condition remained still unchanged. In the same way passed a third night and the following day, Thursday, and even yet the os uteri remained absolutely uninfluenced. On Thursday night a combination of bromide of ammonium, chloral hydrate, and morphia was prescribed, which succeeded in rendering her less sensitive to her suffering, and on Friday morning, *ninety-six hours from the commencement of labor, the os uteri was dilated to the extent of a twenty-five-cent piece only.* This process, so tardy to begin, was equally slow in its progress, there being but little gain during the entire day, and at the expiration of twenty-four hours more the cervix might be said to have been about one-half dilated; nor was it until the afternoon of Saturday, *the sixth day of labor*, that a dilatation of two-thirds the entire extent had been accomplished. Up to this period there was no change in the character of the pains, and *there was, all through, a very remarkable and total absence of all expulsive effort*, while the cervix and soft parts generally maintained that moist, cool, and dilatable condition noticed in the beginning.

It is also worthy of mention that, whether on account of her peculiar nervous organization, or as the result of long-continued suffering and want of sleep, or all combined, she manifested great intolerance of manual interference, so that the most gentle vaginal examination seemed to distress her very

much. Her pulse was now becoming rapid and feeble. Her countenance betrayed evidences of great anxiety and physical exhaustion; and as dilatation had advanced sufficiently, though barely far enough to warrant the application of forceps, I determined to deliver. With this view, I requested assistance, and Dr. Bunker was sent for.

Before proceeding further, it was decided to administer a full dose of Squibb's fluid extract of ergot, though, judging from the peculiar history of the case thus far, but little confidence was felt in the power of that or any other medicinal agent over a uterus in a state of undoubted pathological inertia; and this anticipation was soon fully realized, one hour and a half having elapsed without the least evidence of any specific action from that drug.

The patient having been anæsthetized by chloroform, but little difficulty was experienced in adjusting the short forceps, and the delivery of a semi-asphyxiated male child was slowly and carefully effected. On placing the hand over the abdomen for the purpose of exciting uterine contraction, it was now noticed that there was a total absence of any firm spherical body representing the fundus uteri, and no amount of external manipulation seemed to alter this anomalous condition.

After a delay of fifteen minutes, *the placenta, on examination, was found low down in the vagina, and, unexpectedly, entirely detached.* This having been cautiously, and, with a rotary motion, slowly removed, the hand was now carried up into the cavity of the uterus, where it came in contact with a large, soft, mass resembling a placenta, while, externally, a correspondingly large circular depression, having a firm, well-defined rim, could be distinctly felt and outlined. The depressed fundus offered no resistance to upward pressure of the hand within, but every partial withdrawal of the latter was at once followed by a settling down of the entire fundus as before. *Strange as it may appear, there was no very considerable loss of blood, certainly no active hæmorrhage.*

At this juncture the condition of the patient became most alarming. She grew deadly pale, and her respiration was hurried and weak; the radial pulse, first exceedingly small and rapid, in a few moments ceased to be distinguishable, the

features became pinched, the extremities cold, and fatal syncope seemed inevitable. Under these circumstances all further efforts in behalf of the partially inverted uterus had to be abandoned, and our entire attention was thenceforth directed toward rescuing the patient, if possible, from impending death.

A hypodermic injection of thirty drops of brandy was at once given, and eight ounces of the same thrown into the rectum; other restorative measures suggested by the emergency were also resorted to, yet, in spite of all, a period of suspense, seemingly interminable, had to be endured, for it was not until the lapse of an hour and a half that the pulse could again be distinguished at the wrist. At 1 o'clock A. M. (seven hours after delivery), reaction had become sufficiently established to warrant a hope that the dangerous crisis had passed; and by 6 A. M. she expressed herself as feeling comfortable, though there was great restlessness, manifested by an uncontrollable desire to change her position. During the succeeding twenty-four hours she continued in an exceedingly prostrated state, though free from pain, and her pulse ranged from 140 to 150; *still, there was no hæmorrhage*, the flow being but little in excess of an ordinary lochial discharge.

By Monday morning her condition had decidedly improved, and, feeling anxious regarding the position of the uterus, lest pains should return and thus convert a partial into a more complete inversion, I proposed to risk the administration of an anæsthetic, and adopt some mechanical means for supporting the fundus. Before doing so, however, I requested that Dr. Thomas should be sent for, which was done, but other engagements rendered it impossible for him to meet me until the following day, consequently, it was decided to postpone interference until we could have the benefit of his counsel and aid; besides, there was, thus far, no reason to fear any aggravated degree of the uterine difficulty, and every care was taken to keep her perfectly quiet. In the course of the afternoon, however, she began to complain of distressing pains resembling, she said, those preceding delivery, and which, in spite of opiates freely administered, kept on steadily increasing until 10 P. M., when, after an unusually severe one, referred

to the sacro-lumbar region, almost entire and continued relief followed. A digital examination was now made, when the entire vagina, or at least its upper two-thirds, was found to be completely packed with a large fleshy mass. The entire fundus had passed through the cervix, thus converting, at once, a partial into a more or less complete inversion.

On Tuesday, September 3d, Dr. Thomas saw her in consultation, when it was decided to make an effort to restore the uterus. The patient having been anæsthetized, he (Dr. Thomas) proceeded in the usual way to effect a return of the fundus by taxis; but he had not continued his efforts very long before he became convinced that restoration was *then* neither practicable nor possible. The inverted organ was not only very large, but extremely soft, and liable to give way from pressure of the fingers. A second attempt was next made by myself, with no other result than a full confirmation of the opinion and statements of Dr. Thomas.

It was now decided to allow another week to pass over before any further attempt at reversion should be made, hoping to find, by that time, some improvement in her general condition; and that the uterus, if not reduced by involution, might possibly be found more firm and elastic. Moreover, we felt that no possible harm could come to the patient by such delay, particularly as there was no hæmorrhage; that the case was, in many important respects, a very grave and anomalous one, and, consequently, one involving deep responsibility; and that an absolute failure to restore the displaced organ would most assuredly doom the unhappy sufferer to a long period — perhaps a lifetime—of great distress, if not to death.

Wednesday, September 11th, being *the eleventh day after delivery and partial inversion, and nine days after the entire fundus had passed through the cervix*, was appointed for another trial at reduction by taxis, and, in the mean time, the instruments here illustrated were devised.

As considerable delay was anticipated, ether was the anæsthetic chosen, and, previous to its being administered, a hypodermic injection, representing $\frac{1}{8}$ grain of morphia and $\frac{1}{60}$ grain atropine, was given. Present, Drs. Thomas, Bunker,

Santoire, and Hesse. The patient having been placed on a table, and maintained in a position somewhat similar to that chosen for lithotomy, I cautiously passed the instrument with large-sized cup ($2\frac{1}{2}$ inches inside diameter) within the vaginal orifice, where it received, and snugly accommodated, the

a, Repositor with large cup attached; *b*, convex disk to be substituted for the uterine cup in partial inversion or where the introduction of a hand through the cervix might not be practicable; *c*, *d*, *e*, uterine cups of different sizes; *g*, section of instrument showing the independent rod and thumb-screw by which the movable bottom may be projected forward. The remaining figures at bottom denote abdominal plugs.

inverted uterus to the extent of about one-half its estimated length. The abdominal plugs were taken charge of, and their proper application directed, by Dr. Thomas, efficient aid being also rendered by the other gentlemen present. When the entire uterus was raised up, and the vagina thus put upon the stretch, there was no difficulty experienced in finding the circular depression marking the cervical stricture, about midway between the umbilicus and pubic symphysis. An abdominal plug for dilatation and counter-pressure, and of suitable size, being now firmly fixed over the concavity, so as to insure full control of the uterus at both extremities, the upward pressure was somewhat relaxed, in order to avoid undue vaginal stretching. Steady pressure was now

brought to bear upon the fundus by the repositor, and kept up without variation for a period of probably ten minutes, when Dr. Thomas announced his impression that the cervix was beginning to relax and enlarge.

The movable bottom was, consequently, screwed up to the extent of an inch, so as to shallow the cup in proportion to the surmised progress made. The same steady, upward pressure was again resumed, and continued about ten minutes more, when a very decided advance was observed, not only in the increased size of the abdominal depression, but also because of the shorter distance noticed between the handle of the instrument and the perinæum. Once more the bottom of the cup was projected forward, and now to its fullest extent, while pressure was made by a rolling motion, when it was announced that the rim of the concave disk could be distinctly felt through the abdominal wall. The instrument being now withdrawn, Dr. Thomas introduced his hand into the uterus, when he found the entire organ restored, with the exception of a small egg-shaped projection of the fundus, which readily yielded to a finger.

There was no loss of blood during the entire operation beyond the lochial flow which was still in progress, and the patient at date of report (September 23d) is fast convalescing.

It may not be amiss to state, in conclusion, that about a week ago Dr. Thomas had an opportunity to test the value of my instrument in a case of chronic inversion, and where the small-sized cup was substituted. The following note has since been received from him:

294 Fifth Avenue, New York, *September* 20, 1878.

My dear Doctor: On the 16th of this month I used your uterine repositor in an attempt at reposition of an inverted uterus. I am happy to state to you that it fulfilled all indications very admirably, and that the displaced uterus was completely restored to position by its aid with rapidity and safety.

Hoping that the case of inversion which I so lately saw reduced by the same instrument progresses favorably, I remain,

Faithfully yours,

T. Gaillard Thomas.

Dr. John Byrne.

Though the success thus far attending the use of a simple contrivance, hurriedly devised and rudely constructed, is very gratifying, I regret that time will not at present permit of my describing an additional aid, or rather a modification of the manner in which abdominal counter-pressure and the dilating effects of the conical plug might be even more effectually carried out.

A little device for this purpose will be described hereafter.

In the October number of this Journal I reported an unusually interesting case of unavoidable puerperal inversio uteri, *of eleven days' standing*, in which restoration was effected by the aid of a new instrument extemporized for the emergency. I alluded then to what I surmised might be found an equally satisfactory method of overcoming cervical constriction, and, at the same time, a better means of maintaining *continuous* counter-force, than by the simple plug heretofore employed.[1] This substitute for the latter has been designed to meet a double purpose: first, dilatation of the stricture, and, second, eversion of the invaginated tissues, two distinct and very different processes in the dynamics and methodical order of restoration.

For example, when the annular constriction, through the combined forces of upward pressure and outside *central* resistance, has been made to yield so as to permit the return of any considerable portion of the mass, the first stage in the process of restoration must be considered as complete.

If, at this juncture, the same form of abdominal counter-pressure should be maintained and persisted in, though a degree of support sufficient to prevent undue stretching of the vaginal canal may be secured, yet, the very presence of

[1] To our distinguished countryman, Dr. Thomas, is due the credit of first suggesting the plug or "cone of boxwood," for abdominal counter-pressure.—"Diseases of Women," fourth edition, p. 439.

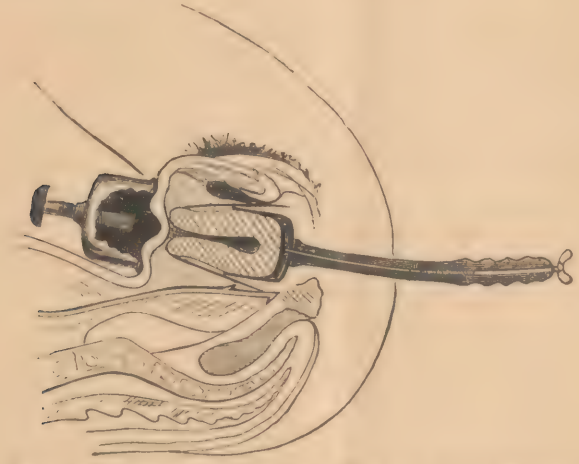
the wedge, previously so efficient and indispensable, can now have no other effect than that of retarding the operation, or rendering its completion, by this means, impossible. Nor is this the only or most serious objection to the continued use of the plug during the second and final stages of restoration, for the fundus, to say nothing of the ovaries and tubes, must inevitably suffer a dangerous degree of compression.

The *rationale* of the second stage of restoration would seem, therefore, to be best promoted by substituting, for the central *point d'appui*, a counter-pressure applied *to the periphery of the ring exclusively*, thus contributing materially to the influence of the repositor in rolling the uterine tissues over and outward.

As to the third stage, where the position of the uterus might be supposed to represent inversion of the first degree, a hand of the operator, properly and steadily applied, may fulfill every purpose indicated; nevertheless, I cannot but believe that, even here, any contrivance through whose agency a circular concavity might be presented to the returning fundus would be decidedly preferable. It is true, no opportunity has yet offered for practically testing the action of this proposed companion instrument; still, the accompanying cut, intended to illustrate its application and mode of action, may at least serve to suggest the correct principle of taxis in all cases of uncomplicated inversion, whether puerperal (acute) or chronic.

The abdominal instrument is an open bell-shaped cup, through the centre of which passes a screw, provided at its lower end with a conical plug of hard rubber, and on the opposite, or outer extremity, a flat knob for a handle. When about to be used, the handle should be screwed down so as to project the plug a suitable distance beyond the margin of the cup. The uterus being raised upward and forward by means of the repositor, as heretofore described, there will be no difficulty in recognizing, through the abdominal parietes, the funnel-shaped depression of the inverted cervix, in the centre of which the dilating wedge should be inserted. The uterus, thus fixed between the two instruments, should now be low-

ered in the pelvis so as to remove all strain from the vagina, and, the bell-cup having been turned down in close contact with the abdominal surface, the work of restoration may be commenced. *It would be well to remark that the duty of the assistant in charge of the external parts will be simply to maintain a degree of passive counter-force sufficient to resist pressure from below.*



Uterine Repositor with Abdominal Plug and Cup in Position.

So soon as it appears reasonably certain that progress has been made, and this will, probably, be indicated by an increase in the diameter of the abdominal ring, as also by the ascent of the repositor, the dilating wedge should be screwed back entirely within and above the brim of the cup, so as to *remove all central pressure.* Directions for managing the former instrument, especially as regards the manipulation of the independent bottom, having been embodied in my report already published, need not be repeated here. I will merely add, that the size of the repositor-cup should always be regulated, as nearly as possible, by the estimated bulk of the mass which it is designed to accommodate, to the end that the uterus, when securely boxed up in this cylindrical case, may not have its transverse diameter increased by spreading, or its tissues unequally compressed by any reasonable or required amount of upward pressure.

Since the publication of my case, considerable thought has been given to the subject of inversion, more particularly with reference to the causes to which we should look for an explanation of its occurrence in the puerperal state. An investigation into the details of a large number of recorded cases has also been made, with a view to discover, if possible, some physical or rational signs by which we might be able to suspect, if not to recognize, a predisposition to so grave an accident, and thereby enable us to anticipate the evil by a suitable prophylactic course of management.

In the very outset of this inquiry, as, indeed, at every stage of such an investigation, one naturally encounters certain pertinent and very vital questions, the elucidation of which, though most desirable, would be too much to hope for from a mere brief *résumé* of the very points to be considered, and, if possible, settled. My present object, therefore, is simply to call attention to certain clinical facts, apparently, if not really, irreconcilable with such explanations as obstetric authorities have from time to time advanced.

For example, why is it that partial or complete inversion of the uterus has taken place in a large proportion of the cases reported when a comparatively slight exciting cause existed, as, for instance, "a very trifling amount of traction on the funis;" "the most careful peeling off of a partially adherent placenta;" "a rapid expulsion of the fœtus," or "pressure of the intestines and abdominal muscles, owing to excessive voluntary expulsive efforts on the part of the patient;" from "a partially erect position of the patient during delivery," but "without consequent traction on the cord;" and, finally, as in my case, where there was a total absence of any one of the foregoing or other exciting causes to explain or in any way account for the inversion? To reply that in many of these cases there must have been irregular uterine contraction, or a flabby or paralyzed condition of the fundus, is surely no satisfactory explanation at all, but the mere statement of a certain condition which, even admitting its existence, cannot have other than a secondary causal connection with the occurrence. That a state of active contraction on the part of the fundus, coexisting with inertia of the cervix, or *vice versa*, and by which we

recognize a loss of balance between the cerebro-spinal and ganglionic powers, will predispose to or result in the displacement under consideration, it were folly to question. But the knowledge of this clinical fact brings us no nearer an explanation, logical or pathological, of the *fons et origo mali*.

Nearly thirty years ago Dr. Merriman, of London, in referring to the causes of inversio uteri, stated that, though hasty and injudicious meddling with the placenta was frequently the exciting cause of the catastrophe, "nevertheless, evidence is to be found which warrants the belief that some affection or peculiarity in the uterine system itself contributes its share to the occurrence." And in connection with this statement he also says: "I was once called to a case of ruptured uterus in which a soft, flabby, pulpy texture existed, and the rupture appeared to have taken place during a pain of unusually low power."[1]

To these suggestive views of a deservedly high authority I might appropriately add my own experience in two cases of rupture of the uterus, which occurred in my practice many years ago. Neither of these women, both multiparous, had had a labor of average severity or duration. No ergot had been administered, nor was there at the time any known cause to account for the fatal *dénouement*.

In one a *post-mortem* examination was made, and the tissues for a considerable distance around and beyond the seat of rupture were so attenuated and friable that the uterine wall could be perforated by a slight pressure of the finger and thumb.

As to the other, it was found out afterward that, about two weeks previous to her confinement, she had sustained an injury over the abdomen, considered slight at the time of its occurrence, by accidentally falling against a stair-rail.

Whether by a closer observation than is usually bestowed on the phenomena of parturition individually, and a due appreciation of the causes of faulty, irregular, inefficient, or otherwise abnormal labor, we may be enabled hereafter to foresee and guard against inversion, or, when unavoidable, be

[1] *Medical Times*, London, July 12, 1851, p. 36.

better prepared for so grave an emergency, time alone will tell. In the mean time, however, I would respectfully suggest to such as may have the time, experience, and desire to pursue the course of investigation thus hurriedly and imperfectly outlined, that, in discussing the etiology of puerperal inversion of the uterus, the subject might be most satisfactorily treated under three heads or sets of causes, viz.: PRIMARY, PREDISPOSING, and INCIDENTAL.

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